

REMARKS

Reconsideration of the above-identified application, as amended, is respectfully requested.

In the Office Action, now made FINAL, the Examiner rejected Claims 1-9, 11-18 and 23-30 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,817,093 to Williamson IV et al. (hereinafter “Williamson”) in view of Malis et al. (U.S. Patent No. 5,318,563) (hereinafter “Malis”). Furthermore, the Examiner finally rejected Claim 10 under 35 U.S.C. § 103(a) as being unpatentable over Williamson in view of Malis and further in view of Sherman (U.S. Patent No. 6,050,994 (hereinafter “Sherman”)).

In response, applicants concurrently submit a request for continued examination (RCE) in this case, and submit this amendment to Claims 1 and 23 and corresponding remarks to distinguish over the cited references to Williamson and Malis.

With respect to the rejection of Claims 1-9, 11-18 and 23-30 under 35 U.S.C. §103(a) as being unpatentable over Williamson in view of Malis, applicants respectfully disagree.

Particularly, applicants have added to Claim 1 limitations drawn to the specific algorithms implemented in the control means, such as disclosed in Figure 6 of the present specification. The amendment to Claim 1 thus, now specifies a particular algorithm for judging control of the alternate application of high frequency power. That is, as disclosed in the specification from page 30, first full paragraph to page 33, second to last paragraph, and as now recited in amended Claim 1, the control means implements an algorithm for the intermittent control (repeated continuous and discontinuous application) of high-frequency power delivered intermittently to tissue over a plurality of time intervals (n), wherein the

control means calculates a change in the impedance (ΔZ_n) offered by a living tissue during each application delivery interval n, and compares a value $\Delta Z_n/Z_{sn}$, where Z_{sn} is a measured tissue impedance offered at the start of the nth delivery interval, against a predetermined value implying completion of coagulation change, wherein if $\Delta Z_n/Z_{Sn}$ meets a completion condition, the control circuit stops repetition of continuation and discontinuation of output power delivery. Respectfully, no new matter is being added by the amendment to Claim 1 which subject matter is clearly taught in Fig. 6 of the specification.

It is further respectfully submitted that the combination of Williamson and Malis do not teach or suggest use of such a tissue impedance control algorithm. Moreover, as previously mentioned, the application of high-frequency power in the Williamson device appears to be continuous, and not intermittent, as in the present invention. While Williamson teaches possible periodic measurements of tissue impedance for feedback control, Williamson does not appear to teach or suggest the intermittent control (repeated continuous and discontinuous application) of high-frequency power as controlled by the tissue impedance control algorithm as now recited in amended Claim 1 that enables tissue coverage over a wide range.

Further to the amendment to Claim 1, new Claims 31 and 32 are being added to clarify what constitutes the measurement of ΔZ_n . For example, Claim 31 sets forth the calculation of ΔZ_n as dependent upon a measured impedance value calculated at the end of a pause period after the nth delivery interval when high frequency output power is not delivered; and, Claim 32 sets forth a variation of the tissue impedance monitoring algorithm whereby ΔZ_n is dependent upon a measured tissue impedance calculated at the start of a

delivery interval succeeding the pause period when high frequency output power is not delivered.

Respectfully, no new matter is being entered by the addition of Claims 31 and 32. Moreover, for reasons aforesaid, Williamson in view of Malis whether taken alone or in combination, do not teach the subject matter of Claims 31 and 32 dependent upon amended Claim 1.

With respect to the rejection of independent Claim 23, applicants respectfully disagree in view of the amendments made thereto. Particularly, applicants have added claim limitations drawn to the specific algorithms implemented in the control means, to render application of high-frequency power and control of application of current to the tissue being coagulated in the manner of such as disclosed in Figure 17A and 17B of the present specification. The amendment to Claim 23 thus, now specifies a particular algorithm for judging control of the application of high frequency power alternately at first and second power levels. That is, as disclosed in the specification from page 42, second full paragraph to page 43, first paragraph, and as now recited in amended Claim 23, the control means implements an algorithm controlling the application of high-frequency power alternately between first and second levels as shown in Fig. 17A of the specification that is delivered to the tissue over a plurality of time intervals (n), wherein the control means calculates a difference in the current value (ΔI) conducted by a living tissue between the initial current value (IS) conducted by a living tissue during each application of output power at the second level with the final current value IE conducted by said living tissue during an immediately preceding delivery period of the output power of the second level, and comparing a value $\Delta I/IS$ against a predetermined value implying completion of coagulation change, wherein if

ΔI/IS meets a completion condition, the control circuit stops the alternate delivery of high-frequency output power at the first and second levels. Respectfully, no new matter is being added by the amendment to Claim 23 which subject matter is clearly taught in Fig. 17B and aforementioned pages 42 and 43 of the specification.

As stated in the present specification, when a living tissue is coagulated over a wide range, the impedance offered by the living tissue during each delivery period gets larger than the one offered thereby during an immediately preceding delivery period. Likewise, the temperature exhibited by the living tissue during each delivery period gets higher than the one exhibited thereby during the immediately preceding delivery period. Moreover, rates at which the impedance of the living tissue increases during each delivery period and the temperature thereof rises during the same period get higher than the ones at which the impedance increases during the immediately preceding delivery period and the temperature rises during the same period. Rates at which the impedance of the living tissue decreases during each pause period and the temperature thereof drops during the same period get higher accordingly. Owing to this nature of living tissues, the control circuit of the invention judges over how wide a range a living tissue has been coagulated and, according to the invention, high-frequency output power is delivered intermittently (Claim 1) or, alternately at two different power levels (Claim 23).

Thus, the Examiner's rejection is respectfully traversed and based on these arguments, the Examiner is respectfully requested to withdraw the rejections of amended Claim 1 and Claim 23 which are distinguishable over Williamson and Malis. In view of the foregoing, and by virtue of its dependency, the Examiner is respectfully requested to

withdraw the rejection of Claim 10 which is distinguishable over Williamson, Malis and Sherman for the same reason.

If the Examiner believes that a telephone conference with Applicant's attorney would be advantageous to the disposition of this matter, the Examiner is requested to telephone the undersigned.

Respectfully submitted,



Steven Fischman
Registration No. 34,594

Scully, Scott, Murphy & Presser, P.C.
400 Garden City Plaza, Suite 300
Garden City, New York 11530
(516) 742-4343

SF:gc